NOAA FISHERIES

SPECIES *in the* SPOTLIGHT

# Priority Actions: 2016-2020

## Pacific Leatherback Turtle

*Dermochelys coriacea*

## SPECIES SPOTLIGHT BACKGROUND

The 5-year action plan is part of a strategy to marshal resources for species listed under the Endangered Species Act of 1973 (ESA) for which immediate, targeted efforts are vital for stabilizing their populations and preventing their extinction. Eight species were identified by the National Marine Fisheries Service (NMFS) as among the most at-risk of extinction:

- Atlantic Salmon Gulf of Maine Distinct Population Segment (DPS)
- Central California Coast Coho Evolutionarily Significant Unit (ESU)
- Cook Inlet Beluga Whale DPS
- Hawaiian Monk Seal
- Pacific Leatherback Sea Turtle
- Sacramento River Winter-run Chinook ESU
- Southern Resident Killer Whale DPS
- White Abalone

These species were identified as among the most at-risk of extinction based on three criteria: (1) endangered listing, (2) declining populations, and (3) are considered a recovery priority #1[1]. We know the threats facing these species and understand the management actions we can take that will have a high probability of success. The 5-year action plan builds upon existing recovery or conservation plans and details the focused efforts needed over the next 5 years to reduce threats and stabilize population declines. We will engage our partners in the public and private sectors in actions they can take to support this important effort. We will report on our progress through the Biennial Report to Congress and post updates on our website: http://www.nmfs.noaa.gov/pr/.

This strategy will guide agency actions where we have the discretion to make critical investments to safeguard these most endangered species. The strategy will not divert resources away from the important and continued efforts to support all ESA-listed species under our authority. Many of our species have long-standing conservation programs supported by multiple partners. We remain committed to those programs. This action plan is designed to highlight the actions that can be taken by us, other federal and state resource agencies, environmental

[1] Priority #1 is defined as a species whose extinction is almost certain in the immediate future because of a rapid population decline or habitat destruction, whose limiting factors and threats are well understood and the needed management actions are known and have a high probability of success, and is a species that is in conflict with construction or other developmental projects or other forms of economic activity. NMFS Endangered and Threatened Listing Recovery Guidelines (55 FR 24296, June 15, 1990).

organizations and other partners to turn the trend around for this species from a declining trajectory to a trajectory towards recovery.

## PACIFIC LEATHERBACK STATUS

The leatherback turtle is the largest turtle and one of the largest living reptiles in the world. As its name suggests, the leatherback is the only sea turtle that doesn't have a hard bony shell. Leatherbacks are found across the globe in temperate and tropical latitudes and are highly migratory. Pacific leatherbacks are split into western and eastern Pacific subpopulations based on their distribution and biological and genetic characteristics. Eastern Pacific leatherbacks nest along the Pacific coast of the Americas, primarily in Mexico and Costa Rica, and forage throughout coastal and pelagic habitats of the eastern tropical Pacific. Western Pacific leatherbacks nest in the Indo-Pacific, primarily in Indonesia, Papua New Guinea and the Solomon Islands. A proportion of this population migrates north through the waters of Indonesia, Malaysia, Philippines, and Japan, and across the Pacific past Hawaii to feeding areas off the Pacific coast of North America. Another segment of the western subpopulation migrates into the southern hemisphere through the Coral Sea, into waters of the western South Pacific Ocean.

Unlike populations in the Caribbean and Atlantic Ocean, which are generally stable or increasing, western Pacific leatherbacks have declined more than 80% and eastern Pacific leatherbacks have declined by more than 97% since the 1980's (45, 47). Because the threats to these subpopulations have not ceased, the International Union for Conservation of Nature has predicted a decline of 96% for the western Pacific subpopulation and a decline of nearly 100% for the eastern Pacific subpopulation by 2040, which is only one generation from now (48).

The leatherback turtle was listed as endangered under the ESA in 1973. Since 1977, NMFS and the U.S. Fish and Wildlife Service (USFWS), collectively referred to as the Services, have shared jurisdiction for recovery and conservation of sea turtles listed under the ESA. NMFS leads the conservation and recovery of sea turtles in the marine environment, and USFWS has the lead for the conservation and recovery of sea turtles on nesting beaches. In the 2013 status review for the species, the Services recommended that research continue and be made a priority, which includes long-term population trends based on both nesting and in-water population monitoring, hatchling and juvenile dispersal, genetic relationships among nesting populations, impacts of and bycatch reduction from coastal and pelagic fisheries, impacts of climate change, and identification of threats in foraging areas (29). The Services further recommended that federal grant programs, relevant to sea turtle conservation and protection, prioritize support for conservation and protection programs that would most benefit leatherback populations in the Pacific Ocean.

The Services have been involved in leatherback turtle research and conservation for over four decades. However, the recovery is a long-term challenge requiring sustained and continued cooperation of governments, academia, non-governmental organizations, businesses, local communities and private landowners. Without focused intervention and renewed critical investments from the Services and our domestic and international partners, further declines are likely to result in the loss of leatherbacks in the Pacific Ocean.

Pacific leatherbacks face significant threats from entanglement and/or hooking in fisheries (bycatch), direct harvest --including eggs and adults-- coastal development, pollution, marine debris, disease and climate change. Reducing interactions with fisheries, maintaining and increasing nesting beach protection to reduce community-based harvest and predation, mitigating the effects of habitat loss from climate change, implementing measures to improve reproductive output, and reducing pollution in the marine environment are critical components of this holistic strategy in the Pacific.

## PACIFIC LEATHERBACK TURTLE KEY CONSERVATION EFFORTS/CHALLENGES

Although the majority of the aforementioned threats occur outside of U.S. jurisdiction, the Services have enacted several regulations to conserve and recover Pacific leatherbacks by addressing threats that occur in U.S. waters. In 2001, NMFS established the Pacific Leatherback Conservation Area off of central California and Oregon, which consists of 213,000 square miles of the Exclusive Economic Zone and bans large-mesh drift gillnet fishing to protect leatherbacks when they are present and foraging off the U.S. West Coast from August 15 to November 15 annually. In addition, there is an observer program in place to monitor leatherback interactions in the large-mesh drift gillnet fishery throughout the fishing season.

Since 2004, the Hawaii shallow-set pelagic longline fishery has been regulated to reduce leatherback interactions. This includes 100% fishery observer[2] coverage and annual limits on the numbers of interactions that occur between fishing vessels and sea turtles (26 leatherbacks, 34 loggerheads). If either limit is reached, the shallow-set longline fishery is immediately closed for the remainder of the calendar year. Additionally, the shallow-set longline fishery targeting swordfish is required to use 18/0 circle hooks and mackerel bait, which has been shown to reduce leatherback capture rates by 83%[3] (15). All Pacific U.S. commercial fishing vessels are

[2] See http://www.st.nmfs.noaa.gov/observer-home/ for more information on the National Observer Program for fisheries.

[3] This finding is from 2007 and is based on one year of data. A new analysis is currently underway to determine whether these reductions in sea turtle bycatch are continuing.

required to have specific equipment on board to release incidentally captured sea turtles, and fishermen and observers are trained on safe handling and release procedures.

The Services have also worked to identify areas that are important to leatherback recovery and protection. In 2009, the Mariana Trench, Rose Atoll, and Pacific Remote Islands National Monuments (95,000 square miles) were established, prohibiting commercial and recreational fisheries, thus providing important protected areas for leatherbacks in the Pacific. In 2012, approximately 41,914 square miles of critical habitat was designated in two areas off of the U.S. West Coast determined to be key foraging areas and considered essential for the conservation of western Pacific leatherbacks[4].

While significant conservation activities continue in the United States, the highly migratory nature of Pacific leatherbacks necessitates regular cooperation with international partners to address the main threats to leatherbacks. To this end, the Services provide direct financial assistance, contract work and administer grant programs to assist sea turtle conservation activities throughout the world. Between 2000 and 2014, the NMFS worked with a range of internationally-based non-governmental organizations (NGOs), other government agencies and universities to support projects to protect or monitor Pacific leatherbacks in the Philippines, Indonesia, Papua New Guinea, Solomon Islands, Vanuatu and Peru. NMFS has also supported fisheries bycatch mitigation projects in Mexico, Chile, Peru and Indonesia. Likewise, in 2014 the USFWS supported Pacific leatherback conservation projects in Chile, Costa Rica, Indonesia, Mexico, Nicaragua, Panama, Papua New Guinea and Solomon Islands. Through these grants and the associated scientific and technical assistance, the Services are closely coordinating with international partners, and seeking new partners to improve the recovery of Pacific leatherbacks and reverse the current decline.

The plight of eastern and western Pacific leatherbacks has been the subject of several action plans and recovery plans over the last two decades including the Bellagio Blueprint for Action on Pacific Sea Turtles (43), the U.S. Recovery Plan for Pacific populations of Leatherbacks (30), the North American Conservation Action Plan for Pacific Leatherback Sea Turtles, the National Fish and Wildlife Eastern Pacific Leatherback Investment Strategy (28) among others. This five-year action plan builds on and contributes to those on-going initiatives, by bringing to bear the full engagement of NMFS and USFWS together with numerous governmental and non-governmental partners.

NMFS and USFWS have identified the following top five recovery actions to support over the next five years.

[4] 77 FR 4170: Endangered and Threatened Species: Final Rule To Revise the Critical Habitat Designation for the Endangered Leatherback Sea Turtle. http://www.nmfs.noaa.gov/pr/pdfs/fr/fr77-4170.pdf

1.) Reduce Fisheries Interactions
2.) Improve Nesting Beach Protection and Increase Reproductive Output
3.) International Cooperation
4.) Monitoring and Research
5.) Public Engagement

In this action plan, we identify the critical steps to achieve these actions. NMFS and USFWS will be the lead agencies in these efforts and work with partner governments and non-governmental organizations to achieve these efforts. There are numerous partners that have previously or are currently working to recover leatherbacks and we hope to engage new partners in this effort. We recognize that recovery will not occur without significant engagement from multiple national and international partners.

Photo: N. Pilcher: Leatherback turtle hatchling leaving the nesting beach in Papua New Guinea.

## KEY ACTIONS NEEDED 2016-2020

The key actions that follow represent a small subset of the actions identified in several conservation plans including the Services' 1998 recovery plan and represent actions the Services and partners can take in the next five years to promote recovery of the species. The partners

identified below have indicated their interest in helping achieve the action, but are not committed to a specific activity or commitment of resources. This list is not comprehensive of all potential partners, and we welcome partnering with others not identified within this plan.

## Reduce Interactions in Fisheries

**Description and Background:** While there is still some threat from U.S. commercial longline fishing, the threat has been reduced greatly by existing bycatch mitigation measure requirements. However, interactions in international fisheries -- including illegal, unreported, and unregulated fishing -- are one of the most significant threats to Pacific leatherbacks throughout their migratory corridors and foraging areas of both pelagic and nearshore regions that exist along the west coast of the U.S. and south into Mexico and central and South America, as well as the western Pacific in the tropical waters of China, Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands and Timor-Leste (28, 29, 35, 49). Leatherbacks have also been found entangled in derelict fishing gear and debris (14, 19, 37). In addition to threats posed by general fishery interactions, in foreign waters, incidentally caught sea turtles are sometimes retained and harvested for food or other domestic or commercial uses which can accelerate the extinction of both local and regional stocks. These impacts constitute a widespread threat to the species.

We must continue our efforts to identify and reduce fisheries bycatch by foreign fleets, and continue our successes in reducing leatherback interactions in U.S. waters and in known areas of high use by eastern and western Pacific leatherbacks through partnerships. We will continue to work with other countries, non-governmental organizations and through our participation in Regional Fisheries Management Organizations to do so (4, 39). We must accomplish this goal while balancing the economic needs of maintaining catch of target fish species and through the application of various fishery-specific tools such as monitoring programs and bycatch mitigation methodologies in coastal gillnet and pelagic longline fisheries.

NMFS and the USFWS are working with several countries to assess impacts and reduce Pacific leatherback fisheries interactions in coastal waters, but these projects would benefit from additional partners and international government investment. Furthermore, to affect population recovery, reducing mortality from fishery interactions needs to be part of a broader strategy that addresses multiple sources of mortality on nesting beaches and at sea (9).

Specific Actions over the Next Five Years

- Conduct rapid assessments to identify coastal fisheries that occur in key leatherback foraging areas and off key nesting beaches to determine the nature and severity of fisheries interactions and whether any direct harvest is occurring (see 18, 35).
- Conduct trials of bycatch mitigation technologies in key fisheries, particularly trials of illuminated gillnets to reduce western and eastern Pacific leatherback bycatch.
- Convene multidisciplinary working groups to understand bycatch and fishery trends in commercial pelagic longline fisheries that co-occur near key nesting beaches, migratory corridors or in core foraging areas.

**Expected Benefits to the Species:** Reducing and eliminating the main threat and impediment to Pacific leatherback recovery will have the most immediate and substantial impact on the conservation and recovery of this population.
**Sources:** 1, 21, 22, 28, 29, 30, 31, 32, 42, 43, 49, 50
**Location:** U.S and International Pacific Waters and Coasts
**NMFS Point of Contact:** John Wang, NMFS Pacific Island Fisheries Science Center (PIFSC), john.wang@noaa.gov, 808-725-5370; Yonat Swimmer, PIFSC, yonat.swimmer@noaa.gov, 808-725-5370; Peter Dutton NMFS Southwest Fisheries Science Center (SWFSC), peter.dutton@noaa.gov, 831-771-4154; Scott Benson, SWFSC, scott.benson@noaa.gov, 831-771-4154
**Lead Partner Agencies:** USFWS and NMFS
**Partners:**

- Governments of Indonesia, Philippines, Malaysia, Papua New Guinea, Solomon Islands, México, Costa Rica, Ecuador, Chile, Perú, etc.
- Western Central Pacific Fisheries Commission
- Inter-American Tropical Tuna Commission
- Inter-American Convention for the Protection and Conservation of Sea Turtles (IAC)
- Indian Ocean Southeast Asian Marine Turtle MOU (IOSEA)
- National Fish and Wildlife Foundation
- Western Pacific Regional Fishery Management Council
- World Wildlife Fund (WWF): WWF-Indonesia & WWF-Philippines
- Marine Research Foundation (Malaysia)
- State University of Papua
- Indonesia's Ministry of Maritime Affairs and Fisheries/Kementerian Kelautan dan Perikanan
- University of Bogor
- ProDelphinus (Peru)
- Marine Institute of Peru

- Areas Coastal and Marine Resources (Peru)
- SUB-Secretaria de Pesca (Chile)
- Pacifico Laud (Chile)
- Mexican National Commission of Aquaculture and Fishing
- Mexican National Fisheries Institute
- Pacifico Laud (Mexico)

**Proposed Start Date:** Underway
**Expected Completion Date:** 2020 and beyond
**Current Status:** Projects are already underway in Indonesia, Chile and Peru
**Updates:** Update annually end of each fiscal year
**Resources:**

*Funding:*

Approximately $150 - 300K annually (current FY14-15 funding levels below 150K)

*Opportunities for Partners:*

- We encourage sustained partnerships and seek additional partners to support efforts to reduce interactions in fisheries operating in the Western and Eastern Pacific.

## Improve Nesting Beach Protection and Increase Reproductive Output through Outreach and Community Support

**Description and Background:** In the western Pacific Ocean, the main nesting beaches occur in Papua Barat Indonesia, Papua New Guinea, Bougainville Island of Papua New Guinea, and Solomon Islands, (3, 5, 10, 20, 23). Papua Barat Indonesia supports 75% of the leatherback nesting in the western Pacific (4, 10). Nesting trends in this region at two index beaches indicate declines of 78.3% over 27 years at Jamursba-Medi (from just over 14,500 nests in 1984 to nearly 1,600 nests in 2011) and by 62.8 % over a nine year period at Wermon (2002 to 2011) (45, 48). In 2011, the number of nesting females at these two important nesting beaches was approximately 489 females.

In the eastern Pacific Ocean, important nesting beaches occur in Mexico and Costa Rica with scattered nesting along the Central American coast (25). Seventy-five percent of all eastern Pacific leatherback subpopulation nesting occurs in Mexico (24) and Costa Rica (47). Nesting numbers in this region have declined more than 90% since the 1980s to roughly 100-200 females per year, which corresponds to less than 1,000 adult females estimated to exist in the entire population (28).

Integral to the success of any multinational sea turtle recovery program is the capacity for local communities to support the necessary conservation efforts. Monitoring and conservation of leatherbacks may not be the highest priority for local communities given other resource needs such as direct harvest of nesting turtles and eggs to support education, coastal development, and beach access. Competing with the needs and desires of the pertinent communities adjacent to the nesting beaches has proven to be challenging for maintaining leatherback monitoring and conservation programs in the region. Despite these challenges, we must continue to foster support and partnership for leatherback conservation in all relevant communities/countries.

Direct Harvest on Nesting Beaches

Direct harvest of nesting turtles and their eggs has been identified as a primary threat to Pacific leatherback populations. The harvest of sea turtles and their eggs for food or any other domestic or commercial use constitutes a widespread threat to the species. Removing breeding adults from a population can accelerate the extinction of local stocks, and the persistent collection of eggs guarantees that future population recruitment will be reduced.

To address this threat, direct take of nesting turtles and their eggs (e.g., eggs are often sold to get funds to send children to school) needs to be eliminated. We need culturally sensitive, community-based education, alternative livelihood programs, or community incentive programs designed to improve village or community infrastructure to offset the socio-economic costs of conservation and help sustain recovery efforts.

Increase Hatchling Emergence and Survival

Human populations are growing rapidly in many areas of the coastal Pacific and this expansion is exerting increasing pressure on limited resources. Coastal development and village sprawl is occurring at a rapid rate and is resulting in a loss of sea turtle nesting areas with associated disturbance of nesting females.

It is important that predators be controlled or eliminated from nesting areas. The loss of eggs to feral predators such as pigs or dogs is a severe and chronic problem in some areas (6, 17, 26, 41, 42, 44). Introduced species of plants can also displace native dune and beach vegetation, prevent access to nesting sites, prevent adequate nest digging, exacerbate erosion, or affect hatchling sex ratios by altering incubation temperatures.

In the western Pacific, monitoring activities over time have identified extremely low hatchling production at Jamursba-Medi and Wermon, where predation, erosion and inundation, and very high sand temperatures have been identified as major threats. This has resulted in relocation of nests to shaded hatcheries and relocation of nests to other sections of the beach that are more stable, as well as *in situ* shading and protection of individual nests. This science-based management approach is key for developing an effective nest protection program and boosting

hatchling production, and serves as the foundation for a science-based conservation and management program currently being led by the State University of Papua with scientific and technical support from NMFS.

In addition, coastal development and village sprawl must be monitored to minimize impact on turtle beaches, particularly during the nesting and hatching season and in the long-term. Artificial lighting near nesting beaches should be placed in such a manner that light does not shine on the beach and disrupt nesting and hatchling behavior. Structures should not block the turtle's access to the beach, change beach dynamics, or encourage human activities that might interfere with the nesting process.

**Expected Benefits to the Species:** Protecting nests and nesting habitat is necessary to ensure recruitment into the population, which is critical for the long-term survival of Pacific leatherbacks.

**Sources:** References: 28, 29, 30, 31, 32, 42, 43

**Location:** U.S and International Pacific Waters and Coasts

**NMFS Point of Contact:** Manjula Tiwari, SWFSC, manjula.tiwari@noaa.gov, 858-546-5658; Irene Kelly: NMFS Pacific Islands Regional Office (PIRO), irene.kelly@noaa.gov, 808-725-5141

**Lead Partner Agencies:** USFWS and NMFS

**Partners:**

- Governments of Indonesia, Papua New Guinea, Solomon Islands, Mexico, Costa Rica
- Indonesia Ministry of Marine Affairs and Fisheries
- Indonesia's Ministry of the Environment
- Indonesia and Fisheries and Marine Bureau of Papua Barat Province
- South Pacific Regional Environment Programme
- IOSEA
- IAC
- USAid
- State University of Papua
- Kutzari
- Pacifico Laud (Mexico)
- The Leatherback Trust
- Marine Research Foundation
- The Nature Conservancy, Solomon Islands
- Tetepare Descendants (Solomon Islands)
- Western Pacific Regional Fisheries Management Council
- National Fish and Wildlife Foundation

**Proposed Start Date:** Underway

**Expected Completion Date:** 2020 and beyond
**Current Status:** Underway
**Updates:** Update annually end of each fiscal year
**Resources:**

*Funding:*

Approximately $110 -$140k annually

*Opportunities for Partners:*

- We will work with partners to incentivize community participation in nesting beach conservation through alternative livelihood programs to help wean communities off leatherback turtle resources and introduce alternative methods for food and income generation (e.g., community development projects, etc.)
- We will work with partners in the western Pacific, particularly Indonesia, Solomon Islands and Papua New Guinea (including Bougainville Island), and the eastern Pacific, particularly Mexico and Costa Rica, to identify and implement measures to reduce/eliminate harvest and take of eggs on the nesting beaches.
- We will work with the local partners and local governments to identify effective strategies to minimize the impact of human presence on index beaches and promote science-based mitigation measures that may include *in-situ* protection of nests or other mitigation strategies (e.g., relocation or shading of nests), and educational outreach activities in schools and local communities. This may also include working with communities to address traditional pig trapping in Indonesia.

## Cooperate with International Partners to Implement Conservation Measures and Established Agreements

**Description and Background:** Since Pacific leatherbacks originate from and migrate outside of U.S. territorial waters during much of their life cycle; effective recovery and conservation efforts must include bilateral cooperation around the Pacific Rim and supporting existing multilateral arrangements to address the various threats facing leatherbacks on land and sea. Participation in several multilateral and regional treaties has resulted in measures to conserve leatherback turtles (42, 43).

The U.S has also played a leadership role within Regional Fishery Management Organizations, specifically the Western and Central Pacific Fisheries Commission and the Inter-American Tropical Tuna Commission, proposing and/or supporting resolutions to protect sea turtles from fisheries related threats. Additional multilateral arrangements that are critical for conservation

success include the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, the Agreement on the Convention of Nature and Natural Resources, the Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, the Inter-American Convention (IAC) for the Protection and Conservation of Sea Turtles and the Indian Ocean Southeast Asian Marine Turtle Memorandum of Understanding (IOSEA). In addition, a number of conventions, strategic plans and conservation efforts concerning marine pollution and leatherback protection and recovery also exist such as the Bellagio Blueprint for Action on Pacific Sea Turtles and the Secretariat of the Pacific Regional Environment Programme. We encourage continued involvement, compliance and increased membership among international partners in these efforts, as well as communicating these agreements at the local level to ensure the protection and recovery of this highly migratory and globally distributed species.

In addition to these regional and multilateral agreements, the Services have supported bilateral projects, either through grants or in-kind support to recover Pacific leatherbacks throughout their range. For instance, in Papua Barat Indonesia, a significant nesting area for western Pacific leatherbacks, collaboration with local institutions over the last several decades has aimed to reduce harvest on nesting beaches, establish regular nesting surveys, and improve community engagement in the protection of the nesting beaches to ensure that protection continues into the future. Continuing to engage our international partners in these efforts and enhancing and building the capacity of our international colleagues to successfully accomplish these goals and maintain implementation is vital to the recovery and sustainability of Pacific leatherbacks.

**Expected Benefits to the Species:** Since Pacific leatherbacks originate from and migrate outside of U.S. territorial waters during a large portion of their life cycle, effective international coordination and cooperation is vital to their recovery and conservation.

**Sources:** 28, 29, 30, 31, 32, 42, 43

**Location:** U.S and International Pacific Waters and Coasts

**NMFS Point of Contact:** Manjula Tiwari, SWFSC, manjula.tiwari@noaa.gov, 858-546-5658; Peter Dutton, SWFSC, peter.dutton@noaa.gov, 858-546-5658; Jeffrey Seminoff, SWFSC, jeffrey.seminoff@noaa.gov, 858-546-5658; Alexis Gutierrez, NMFS Office of Protected Resources, alexis.gutierrez@noaa.gov, 301.427.8402; Irene Kelly, PIRO, irene.kelly@noaa.gov, 808-725-5141

**Lead Partner Agencies:** USFWS and NMFS

**Partners:**

- Parties of the IAC
- Signatory States of the IOSEA
- Convention on International Trade in Endangered Species of Wild Fauna and Flora Parties

- South Pacific Regional Environment Programme Parties
- Bilateral Agreements (Chile, Peru and Mexico)
- U.S. and Indonesia Science and Technology Agreement
- Parties to the following Regional Fisheries Management Organizations – Inter-American Tropical Tuna Convention and Western Central Pacific Fisheries Commission
- National Fish and Wildlife Foundation

**Proposed Start Date:** Underway
**Expected Completion Date:** 2020 and beyond
**Current Status:** Underway
**Updates:** Update annually end of each fiscal year
**Resources:**

*Funding:*

Approximately $50-$100k annually

*Opportunities for Partners:*

- We encourage Regional Fisheries Management Organizations delegations to the Western Central Pacific Fisheries Commission and Inter-American Tropical Tuna Commission ensure that all Parties are implementing required sea turtle conservation measures and reporting on current data collection responsibilities (that includes reporting on sea turtle interactions via observer programs).
- We encourage Regional Fisheries Management Organizations to implement the National Ocean Council Committee on IUU Fishing and Seafood Fraud to develop and refine best practices to address IUU fishing that could result in leatherback turtle bycatch.
- We will continue and improve bilateral cooperation particularly with Coral Triangle Countries (e.g., Indonesia, Philippines, and Malaysia), Chile, Peru, Ecuador and Mexico. In the case of Indonesia, NMFS will work with the Indonesian government on critical conservation projects, including bycatch reduction, protection of critical nesting beaches, like Jamursba-Medi, and the development of a conservation and management plan.
- We will implement the Inter-American Convention for the Protection and Conservation of Sea Turtle resolution on eastern Pacific leatherbacks, and encourage partners to support the work on the Eastern Pacific Leatherback Task Force.

## Understand Migratory Habitats and Pelagic Threats to Better Implement Mitigation Measures

**Description and Background:** Continuing the ongoing long-term monitoring efforts for determining distribution and abundance of Pacific leatherbacks in the marine environment is vital to understanding their status and relevant to recovery and protection efforts. Since the species' listing, a substantial amount of information has become available on population structure (through genetic studies) and distribution (through telemetry, tagging, stable isotope and genetic studies). Important contributions have also been made toward hypothesizing the impact of climate and oceanographic processes on the contrasting population trends observed between the Atlantic, Pacific and Indian Oceans. In addition, increased evaluation of fisheries bycatch worldwide has provided important insights into the management of this species.

Leatherbacks migrate from foraging grounds to nesting beaches. These migrations often mean that the turtles move through a variety of political jurisdictions where regulations regarding the stewardship of the species may vary. Understanding where hatchlings disperse and grow and how foraging habitats and oceanographic features influence juvenile, subadult and adult migration behaviors is an essential component to recovering the species.

**Expected Benefits to the Species:** Increased understanding of Pacific leatherback population dynamics and trends is vital to prioritizing recovery and protection efforts to conserve the species.

**Sources:** 28, 29, 30, 31, 32, 42, 43

**Location:** U.S and International Pacific Waters and Coasts

**NMFS Point of Contact:** Manjula Tiwari, SWFSC (for western Pacific nesting beaches), manjula.tiwari@noaa.gov, 858-546-5658; Scott Benson, SWFSC (for satellite telemetry and aerial surveys), scott.benson@noaa.gov, 831-771-4154; Irene Kelly, PIRO, irene.kelly@noaa.gov, 808-725-5141; Todd Jones, PIFSC, todd.jones@noaa.gov, 808-725-5713

**Lead Partner Agencies:** USFWS and NMFS

**Partners:**

- State University of Papua
- Kutzari
- Mexican National Commission of Aquaculture and Fishing
- Mexican National Fisheries Institute
- Costa Rican Ministry of the Environment, Energy and Telecommunications
- Pacifico Laud (Chile)
- The Leatherback Trust

- ProDelphinus (Peru)
- Marine Institute of Peru
- Marine Research Foundation (Malaysia)
- WWF-Indonesia
- WWF-Philippines

**Proposed Start Date:** Underway
**Current Status:** Underway
**Expected Completion Date:** 2020 and Beyond
**Updates:** Update annually end of each fiscal year
**Resources:**

*Funding:*

Approximately $300-$450k annually

*Opportunities for Partners:*

- We encourage sustained partnerships to support satellite telemetry research and aerial survey work to better understand migratory habitats and pelagic threats (including overlap with fisheries), and define seasonal foraging areas or hotspots within the South China, Sulu, and Sulawesi Seas as well as off of the U.S. west coast, and into the eastern Pacific Ocean.

## Raise Awareness and Education of Actions the Public Can Take to Support Leatherback Turtle Conservation

**Description and Background:** Recovering eastern and western Pacific leatherbacks will take significant efforts across a wide range of stakeholders, including the public. While the U.S. public might not be able to directly contribute to improving nesting beach protection or developing ways to reduce interactions in fisheries, there are many ways that they can help through their buying decisions as well as directly participating in conservation projects.

First, the public should be conscientious and responsible seafood consumers. Online resources provide information on bycatch associated with various U.S. and international fisheries. Consumers can use this information to ask where their seafood is from and buy from fisheries that are not likely to affect sea turtles, or are regulated to reduce sea turtle interactions.

Leatherback turtles will commonly ingest debris such as plastic bags, plastic sheets, balloons, latex products and other refuse, which they mistake for jellyfish. Young sea turtles tend to seek shelter under floating objects to avoid predation (7, 37) and adults often congregate where marine

debris often occurs (2, 7). Dead stranded turtles are often found to have died due to ingested garbage resulting in poisoning or obstruction of the esophagus. Entangled turtles cannot submerge to feed or surface to breathe and may become injured or attract predators with their struggling. These threats potentially threaten the survival of leatherback turtles in the Pacific. The public can help reduce the amount of human produced debris in the marine environment by purchasing biodegradable products, disposing of trash properly, and participating in beach and marine clean up events.

Finally, members of the public can help protect and recover Pacific leatherbacks by reporting sightings, as well as stranded, entangled or injured animals.

**Expected Benefits to the Species:** Increased understanding and personal involvement in the recovery and protection of Pacific leatherbacks is vital to the long-term protection and recovery of the species. Consumers who buy from fisheries that are not likely to affect sea turtles, or are regulated to reduce sea turtle interactions will contribute to recovery. Consumers who engage in marine debris reduction/elimination will reduce the likelihood of leatherback injury and mortality and will contribute to the species recovery.

**Sources:** 28, 29, 30, 31, 32, 42, 43
**Location:** U.S and International Pacific Waters and Coasts
**NMFS Point of Contact:** Alexis Gutierrez, NMFS, Office of Protected Resources, alexis.gutierrez@noaa.gov, 301-427-8402
**Lead Partner Agencies:** USFWS and NMFS
**Partners:**

- NOAA's Marine Debris Program
- IAC
- IOSEA
- South Pacific Regional Environment Programme Parties
- WWF
- Coral Triangle Initiative

**Proposed Start Date:** Underway
**Expected Completion Date:** 2020 and beyond
**Current Status:** Underway
**Updates:** Update annually end of each fiscal year
**Resources:**

*Funding:*

In-kind or indirect funding.

*Opportunities for Partners:*

- We encourage consumers to buy seafood from responsibly managed fisheries that do not incidentally injure or kill sea turtles by using resources such as Fishwatch.gov.
- We encourage consumers to buy products with minimal or no plastic packaging and reduce their use of plastics and to responsibly dispose of plastics and other materials harmful to sea turtles and to participate in coastal cleanup efforts of marine debris, such as beach cleanups, to reduce the amount of harmful trash that can harm Pacific leatherbacks and the ecosystems on which they depend.
- We encourage the public to report in-water sightings of Pacific leatherbacks to NMFS[5]and to report stranded, entangled or injured sea turtles by contacting their local stranding response group. More information can be found at NMFS' Health and Stranding webpage.

[5] Leatherback sea turtle sightings along the U.S. west coast can be reported to the NMFS Southwest Fisheries Science Center's Marine Turtle Ecology and Assessment Program at swfsc.turtle-sightings@noaa.gov.

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